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ABSTRACT

Findings of an evaluation of the first 5 years of a longitudinal program designed to enhance children's prosocial development are reported. The program was offered for children in three elmentary schools in a suburban, middle-class district near San Francisco. Three schools in the same district served as a comparison group. Enrollment ranged from 450 to 650 students per school. The program's major aim was to determine whether a comprehensive, long-term program which was delivered primarily by teachers in classrooms and was reinforced by consistent and compatible school-wide policies and practices, family activities, and parental support could significantly strengthen prosocial characteristics in children. The research followed two longitudinal cohorts of children, each cohort consisting of all children at a particular grade level in the six schools. This paper focuses on children in the older cohort. These children began kindergarten in fall 1982 and completed fourth grade in spring 1987. Findings reported cover kindergarten through fourth grade. During each year of the program, data were collected to assess student behavior and the adequacy of program implementation in the classrooms. Analyses revealed strong and consistent program effects in several areas. In general, participation in the program enhanced students' social competence and concern for others. (RH)

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Evaluation of the Child Development Project: Research Design, Procedures, and Findings

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This paper describes findings from the evaluation of the first five years of a longitudinal program designed to enhance children's prosocial development. The term "prosocial" refers to such positive personal qualities as concern for others, helpfulness, generosity, and a tendency to try to balance one's own needs and rights with those of others. The project's major aim is to determine whether a comprehensive, long-term program, delivered primarily by teachers in classrooms (but also with consistent school-wide policies and practices, family activities and parental support), can significantly strengthen these characteristics in children.

The program's approaches, activities and theoretical underpinnings have been described in the other papers in this symposium. This paper is therefore limited to presenting the results of the evaluation of this project.

Evaluation Methods and Findings

The program was provided to children in three elementary schools in a suburban, middle-class district near San Francisco. An equivalent set of three schools in the same district served as a comparison group, and participated in the same research activities, but did not receive the program. The six schools were initially formed into two matched groups of three on the basis of faculty and parent interest in the program, student achievement scores, and community sociodemographic characteristics. One group of schools was then randomly selected to receive the program, and the other to serve as the comparison. Enrollment ranges from about 450 to 650 students per school. The research has followed two longitudinal cohorts of these children, each cohort consisting of all children at a particular grade level in the six schools. This paper focuses on children in the older cohort. These children began kindergarten in the fall of 1982 and completed fourth grade in the spring of 1987; the findings presented here cover kindergarten through fourth grade.

During each year of the program, data have been collected to assess the adequacy of program implementation in the classrooms (through repeated visits to observe classroom activities and climates), and to assess student behavior (through observations in the classrooms throughout the school year, as well as through interviews and small-group task sessions conducted in the spring).

Pre-Program Equivalence of Children in Program and Comparison Schools

To determine the initial equivalence of the two sets of schools, we also conducted a cross-sectional assessment of the social attitudes, motives and behavior of children at four grade levels (K, 2, 4, & 6) in each of the schools during the spring before the start of the program, using individual interviews and a series of four-person tasks. (An additional purpose of this assessment was to provide a further basis of comparison with the longitudinal samples when they reached the same grades, and were assessed with the same instruments and procedures.) Sixteen children (8 boys; 8 girls) were randomly selected to be interviewed at each of these grade level in each of the schools; 32 children at each of the grade levels were randomly selected to participate in the four-person tasks (16 boys; 16 girls).

The interview assessed the child's approach to interpersonal conflict resolution, social understanding (using a measure adapted from Flapan, 1968), reactions to transgressions, tendencies to provide help to others at some cost to the self (with items based on those used by Eisenberg and Hand, 1979), social desirability (with items taken from Crandall, Crandall and Katkovsky, 1965), donating behavior, giving help to an adult (the interviewer), and the child's perceptions of his/her parent's, teacher's, and friends' attitudes about the relative value of helping others achieve something vs. personal achievement. As a check on reliability of scoring, a random sample of approximately 10% of the interviews were independently scored by a second coder. Scoring was quite reliable, with the correlations between pairs of coders averaging .85 or greater.

The four-person tasks were designed to assess interpersonal behavior in a variety of different situations. They included a dart-board task (from Solomon et al, 1972), a group construction task (adapted from Pepitone, 1980), a tower building task, a resource-sharing task, a discussion task (using a topic taken from Selman, 1980), and a reward-distribution task. Children's behavior during the task sessions was videotaped for later detailed analysis of individual actions. Group-level measures, such as degree of collaboration, equality of participation, interpersonal concern, and individual vs. group orientation, were scored live (in the cross-sectional and 1983 longitudinal assessments) or from the videotapes (in the 1985 and 1987 assessments) by trained observers. As with the child interviews, reliability of scoring (assessed by having a random sample of approximately 10% of the groups independently scored from the videotapes by a second coder) was quite high, averaging above .90.

For the total sample, combined across grades, there were no large or consistent differences between children in the two sets of schools for either the interview or small-group tasks. Our conclusion from these "baseline" analyses is that the two school populations were comparable before the start of the program. There were no more significant effects than would be expected by chance, and those that occurred did not systematically favor one group or the other.

Assessment of Program Implementation

During each school year, each cohort-grade classroom in all six participating schools was observed for a two-hour period on eight occasions spread throughout the year, without advance notice to the teacher. In order to maintain "blindness," a new set of observers has been trained each year. Although initially unaware of the fact that there was an intervention, by the end of their year some of the observers, seeing systematic differences between schools, had guessed that these may have been due to an intervention program. However, their hypotheses about the nature of the intervention, and which schools were receiving it, have not been accurate (these are assessed at the end of each year's data collection).

The observations focused on classroom activities, and teacher and student behavior, using both a tally ("sign") system and a rating form to assess the frequency and quality of a broad range of specific classroom activities.

Composite measures that combine items relevant to each of the five program "components," as well as a measure of overall implementation, were derived for each classroom for each year.

Mean scores for program and comparison classrooms on the observation indices (presented as T-scores) for all five years combined are shown in Figure 1. These data indicate that program and comparison classrooms strongly

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Figure 1 Here

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differed with respect to program-relevant activities as defined in each of the five components. Although we feel that program implementation has approached the ideal with only a few of the program school teachers, these data indicate that, overall, the program has been more closely approximated in the program than the comparison classrooms.

The observation-based measures of two of the components, Developmental Discipline and Cooperative Learning, were composed of multiple subcomponents. Program and comparison classroom scores on the subcomponents of Developmental Discipline, combined across years, are shown in Figure 2. The strongest

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Figure 2 Here

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difference occurs for student autonomy and input; program teachers provided their students with more opportunities to make decisions and to influence events in their classrooms. Program school teachers were also observed to show more warmth and supportiveness and to make less use of external control (rewards and punishments) in managing the class.

With respect to the subcomponents of cooperative learning, shown in Figure 3, the program school teachers were more likely to encourage their students' cooperation and to facilitate their cooperative activities (e.g., by helping them with group skills, or setting up a cooperative group); while the students in their classes were observed to engage in more cooperative activity (involving working together toward group goals) and to be more likely to have collaborative discussions within their groups (involving suggesting or giving reasons for opinions, seeking out others' ideas, etc.)

Figure 3 Here

Data obtained from teacher and student questionnaires and from a student interview conducted at the end of third grade corroborated some of these observed differences between the comparison and the program classrooms. The program students interviewed in grade three were more likely than the comparison students to say that they had participated in the development of class rules, and were less likely to say that the class rules had simply been decreed by the teacher (shown in Figure 4). The teacher questionnaires in four

Figure 4 Here

of the five years included a measure of teachers' "control ideology," adapted from one developed by Deci, Schwartz, Sheinman, and Ryan (1981). Teachers with high scores on this measure express greater reliance on maximizing student autonomy in the classroom; those with low scores, greater reliance on the use of power assertion and other forms of external control. The program teachers consistently scored substantially higher on this measure than the comparison teachers. They also reported less use of prizes and rewards as incentives, and greater use of praise. Similar to the report by students, the program teachers also described their students as being more directly involved in the development of class rules. Several other differences also indicate greater student autonomy and self-determination in the program classrooms. Program teachers were more likely to report that students in their classrooms were involved in class discussions about classroom problems, solved their own minor conflicts, decided about their own learning and problem-solving methods, had fewer and less explicit rules to deal with, and had more time in which they were free to interact with one another in class (see Figure 5).

Figure 5 Here

Effects of the Program

As indicated above, a broad range of student outcomes has been assessed each year, through interviews, questionnaires, and observations in classrooms, on the playgrounds, and in structured task sessions. A number of variables from each of these sources have shown scattered differences between program and comparison school children--generally favoring the former--but most of these differences have not been strong enough or consistent enough across years to warrant definitive conclusions. A few variables, however, have shown clear and strong differences that were maintained consistently across years. We will direct most of our attention to these.

Interpersonal behavior in the classroom. The classroom observers spent part of their time observing student interpersonal behavior in the classroom. Four scales were derived from these observations: Supportive and Friendly Behavior, Negative Behavior, Spontaneous Prosocial Behavior, and Harmoniousness. Analyses of these data have consistently indicated that student behavior is more positive in program than in comparison classrooms.

The strongest and most consistent program effect was found for Spontaneous Prosocial Behavior (a measure based on observers' ratings of students' spontaneous helpfulness, concern for others, and cooperation). Significant program vs. comparison differences were also found for Supportive and Friendly Behavior (a combination of a number of sign-system items, including gives support/encouragement, shows affection, invites other to join activity, thanks or praises other student, etc.) and for Harmoniousness (based on ratings of

harmoniousness, apparent interest and involvement, and apparent student happiness).

Because teacher Competence (a scale based on observers' ratings of teachers' enthusiasm, confidence, "withitness," clarity, smoothness and efficiency, anticipation of problems, and effectiveness of control) was found to be strongly related to classroom Harmoniousness (r=.85, p <.0001) and was also marginally higher for the program than the comparison teachers (Ms=51.75 & 47.84 respectively; t=1.66, p<.11), we decided to partial its effect out of the analysis of program effects on students' classroom behavior. In addition, because cooperative activities provided a greater opportunity for student interaction in the classroom (and thus possibly a greater potential for either positive or negative interpersonal behavior), we decided to partial out the effect of student participation in cooperative activities as well. A multivariate analysis of covariance, with these two effects removed, produced an F (4,60) of 3.64 (p<.02, eta^2=.06). The program effect on Harmoniousness disappeared completely, but the other two indices of positive student classroom behavior were still significantly higher in the program classrooms. The adjusted program and comparison means, combined across years, are shown in Figure 6. It can be seen that the effect is still strongest for Spontaneous

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Figure 6 Here

Prosocial Behavior. Within-year analyses showed that students in the program classrooms scored significantly higher on this measure than those in the comparison classrooms in four out of the five years; more than with any of the other student classroom behavior measures. A fuller exposition of these results can be found in Solomon et al. (in press).

Responses to questions asked in the fourth-grade student questionnaire and in the yearly teacher questionnaires have provided some corroborative evidence that student interpersonal behavior is more positive in program than in comparison classrooms. Program students' responses indicated that they saw their classmates as more supportive (e.g., being willing to go out of their way to help others, working together to solve problems, caring about other students' work as well as their own) than did comparison students (prog. & comp. Ms=1.99 & 1.85, respectively; F[1,290]=6.63, p<.01). The program teachers also have reported more positive behavior among their students than have the comparison teachers (with respective program and comparison means, across the five years, of 3.74 and 3.47), although this difference is not statistically significant.

Social problem-solving. Two different measures of social problem-solving included in the child interviews have shown strong and consistent program effects. One measure, administered as part of the kindergarten, second, and fourth grade interviews, presented the children with hypothetical interpersonal conflict situations and asked them to state how the problem could be solved. The other measure, given to the children in first and third grade, was adapted from one developed by Elias (Elias, Larcen, Zlotlow, & Chinsky, 1978), and asked about possible solutions to hypothetical problems concerned with gaining access to an attractive toy and of gaining entry into a group.

A single score was derived from the conflict responses, taking into account both the degree to which the solution showed consideration of both persons' needs and the content of the suggested solutions (with "prosocial" solutions given the highest weights). The mean conflict resolution scores in grades K, 2 and 4, for program and comparison children, are shown in Figure 7. While the

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Figure 7 Here

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scores increase with increasing grade for both groups of schools, the increase is greater for the program school children. There was no difference between groups at kindergarten, a substantial (and significant) difference favoring the program children at 2nd grade, and a still greater difference at 4th grade.

The results obtained with the Elias measure were similar. There were four major measures: Interpersonal Sensitivity (referring to the child's understanding of characters' situations in the hypothetical problem), Problem Resolution Strategy (referring to the content of the proposed solution, with more reasonable and "prosocial" strategies given greater weight), Outcome Expectancy (a combination of the expectation that the outcome will be favorable and that it will result from the exercise of personal initiative), and Means-Ends Cognitive Problem-Solving (referring to the complexity and sophistication of the child's suggested steps toward problem resolution). The latter three of these showed significant differences favoring the program school children in first grade (with respective program and comparison means of 4.88 & 4.59, 4.69 & 4.31, and .46 & .27), while the first and fourth did so at third grade (with means of 3.07 & 2.77 and .70 & .52)--all differences significant at $p<.01$ or better. These means are graphed, for both first and third grades, in Figures 8 through 11. For a fuller description of these findings, see Battistich, Solomon, Watson, Solomon, and Schaps (in press).

Figures 8-11 Here

Democratic values. Several findings have indicated a greater concern for democratic values on the part of the program school children. On the student questionnaire administered in third grade, program children scored significantly higher (prog. & comp. Ms= 3.26 & 2.99, F=9.44, $p<.01$) in one aspect of democratic values--Assertion Responsibility (the responsibility to state one's position, even if it seems unlikely to prevail). With a similar questionnaire given the following year, the program children scored higher than the comparison children on the same measure of Assertion Responsibility (Ms=3.33 & 3.14, F=6.44, $p<.05$), and also on a measure of Equality of Participation and Representation (Ms=3.19 & 2.92, F=16.66, $p<.001$), and on Total Democratic Values (Ms=3.31 & 3.12, F=15.30, $p<.001$)--a measure combining Assertion Responsibility and Equality of Participation/Representation with a consistent and marginally-significant [Ms=3.40 & 3.30, F=2.48, $p<.12$] measure of Willingness to Compromise. The program and comparison means on these variables obtained with the questionnaire administered in fourth grade are shown in Figure 12.

Figure 12 Here

Greater concern for equality of participation and equality of outcomes on the part of program students was also reflected in observers' ratings of children's behavior during several of the small group tasks administered each spring. This occurred with respect to free-play behavior during a four-person dart-board task in the kindergarten assessment ($p < .05$), in a discussion task and a prize distribution task in the second grade assessment ($p < .10$), and in a mixed-motive (cooperative-competitive) "bridge-crossing" dyadic task at third grade ($p < .05$). These findings are presented more fully in Solomon et al. (1987).

Academic achievement. Scores on the California Achievement Test, administered to all fourth-graders by the school district, revealed generally high scores which were undifferentiated between program and comparison children in the fourth grade. This held both for all the children enrolled in fourth grade that year and for just the fourth-graders who had been with the project since kindergarten (165 children). Similar achievement tests administered in the same schools the year before the start of the project also showed generally high scores, with no differences between these two sets of schools, either at fourth or sixth grade. We conclude that pursuit of the CDP program did not impede academic progress, as indexed by standard achievement tests. These tests do not, of course, assess higher-level cognitive skill and understanding, which are the aspects of achievement that we would expect most likely to be enhanced by the CDP emphases on intrinsic motivation, self-direction, and use of explanation, and by its approach to Cooperative Learning. Effects of similar versions of Cooperative Learning on higher-order learning have in fact been reported in studies by Sharan (e.g., Sharan & Shachar, 1988) and the Johnsons (Johnson, Skon & Johnson, 1980).

Discussion and Conclusions

The CDP program was conceived as a broad-ranging attempt to influence children's social development. It was expected that the program experience would have effects on children's prosocial motives, attitudes, skills, inclinations, perceptions and behaviors. The general model for these expectations was presented in Solomon et al (1985). In order to assess effects in all these areas, a similarly comprehensive set of measures and procedures was developed and/or adapted.

The analyses conducted thus far have revealed strong and consistent program effects in several of the many areas assessed; these have been the focus of the data presentation in the present paper. To summarize: (a) there has been clear observational evidence that the program was more closely approximated in the program than the comparison school classrooms; (b) data from teacher questionnaires, student questionnaires and student interviews corroborated observational evidence concerning several aspects of the program, including greater provision of student autonomy and participation in classroom decision-making in the program classrooms; (c) students' interpersonal behavior was more prosocial in the program than the comparison school classrooms (this

was also corroborated by student questionnaire responses, and was independent of group differences in either general teacher competence or the frequency of cooperative activities in the classroom); (d) students' social problem-solving skill (assessed through interviews) was strongly enhanced by the program (and consistently, across years); and (e) students' endorsement of democratic values (particularly Assertion Responsibility and Concern for Equality) appeared to be increased by the program experience.

The overall impression conveyed by this combination of effects is that participation in the program enhanced both social competence and concern for others in students. Program students have consistently demonstrated a better understanding of common interpersonal problems, and a more thoughtful and sophisticated approach to solving such problems than comparison students. Their approach to problem resolution also was more prosocial; program students were more likely than comparison students to consider the other person's needs as well as their own, and to suggest a mutually beneficial solution to the problem. Similarly, while program students were more likely than comparison students to feel that it is important to state one's own position in a disagreement, they also were more concerned about fairness and equality. These findings, we believe, reflect a *self-other balance*: an inclination to be concerned about the needs of others without discounting one's own needs, and to achieve solutions that optimize both in situations where they conflict.

The program was presented as a whole; we are thus unable to assess the relative importance of different aspects of the program to these outcomes. (We plan to conduct additional "natural variation" analyses to explore differences in the effects of different program components.) Certain aspects of the program, however, seem at the least to be logically consistent with these outcomes. The opportunity for interpersonal interaction provided by Cooperative Learning gives children experience at negotiating, stating positions, compromising and working together. As it is implemented in the program classrooms, children are encouraged to attend to each others' needs and feelings and to help one another. It is reasonable to expect that this experience would help to produce the blend of social competence and interpersonal concern that seems, so far, to be the major effect of this program. Similar effects of interpersonal interaction have been proposed by Youniss (1980), in an integration of the theories and observations of Sullivan and Piaget.

Our particular approach to Cooperative Learning explicitly emphasizes and draws children's attention to the social values relevant to group activity, and tries to help them focus on the intrinsic merits and goals of the activity by avoiding or minimizing external controls or incentives. It was expected that these practices would promote children's intrinsic orientation to the group activity (similar predictions, with substantial supporting evidence, are made by Lepper, 1983; and Ryan, Connell & Deci, 1985). Other aspects of the program were also designed to promote children's intrinsic orientation to prosocial values and interpersonal concern. For example, external control is also de-emphasized in teachers' discipline practices, while student autonomy and participation in rule-setting and classroom decision-making are encouraged.

Although the program does appear to have influenced children's social development in some of the ways and in some of the areas that we expected, there are other areas in which anticipated effects either were not found, or were not as large or consistent as we would wish. We are particularly puzzled by findings obtained with the small-group behavioral data (not presented in this paper), which showed some program effects in the lower grades but none in the upper ones; as contrasted with the classroom observational data, which showed program students behaving in a more positive way toward each other at all grade levels. There have been only a few prior attempts to assess generalization of the behavioral effects of cooperative learning beyond the immediate group or classroom setting. The present findings suggest that such generalization may be difficult to achieve. One aspect of our approach to Cooperative Learning was expected to be important for promoting generalization--involving students in frequent discussions (before and after cooperative sessions) about the relevance and importance of general prosocial values to their group experience during cooperative activities, and about the skills and behaviors needed to apply those values. Unfortunately, while the importance of such discussions was emphasized in our training, our informal observations of typical cooperative activities in the program classrooms left us feeling that the discussions were often superficial and did not sufficiently engage students in reflection about the social, personal, or academic implications of the cooperative experience. Furthermore, no explicit attempts were made to show students how the same values and behaviors apply to interpersonal relationships outside the classroom. Generalization may require clear discussions about cross-situational relevance, as well as repeated cooperative experiences in varied settings. Thus, while program students clearly engaged in more cooperative interactions in the classroom than comparison students, their experiences do not as yet appear to have resulted in as strong or consistent positive effects on interpersonal behavior outside of the classroom as within it.

More generally, it seems probable that program effects would have been more widespread if "deeper" and more consistent program implementation had been achieved by more of the program teachers. Our retrospective judgment is that it would have been better to train teachers at a whole-school rather than a single-grade level, and to have given them more time to learn the program before assessing its implementation and effects (not doing so, as we did, in the teachers' first year with the program). We plan to conduct further analyses to determine whether students who received the most adequate program implementation show broader ranges of program effects.

The initial research strategy on this project was to include a broad net of variables representing the variety of areas in which we thought program effects were either likely or possible. The sets of findings on which we have focused in this paper are those that have shown sufficiently strong and consistent program effects, across years, to give us confidence that they are "real." These findings are helping to shape our further analyses of these data, further data collection efforts, and continuing program development and refinement activities. We are now in the process of extending this program to a different district with a heterogeneous, working-to-middle class student population. We will be exploring ways to achieve deeper and more consistent program implementation, determining whether any changes are necessary to carry out the program in the new district, and investigating the generality of the effects found thus far.

References

Battistich, V., Solomon, D., Watson, M., Solomon, J., & Schaps, E. (in press). Effects of an elementary school program to enhance prosocial behavior on children's cognitive social problem-solving skills and strategies. Journal of Applied Developmental Psychology.

Crandall, V.C., Crandall, V.J., & Katkovsky, W. (1965). A children's social desirability questionnaire. Journal of Consulting Psychology, 29, 27-36.

Deci, E. L., Schwartz, A. J., Sheinman, L., & Ryan, R. M. (1981). An instrument to assess adults' orientation toward control versus autonomy with children: Reflections on intrinsic motivation and perceived competence. Journal of Educational Psychology, 73, 642-650.

Eisenberg-Berg, N., & Hand, M. (1979). The relationship of preschoolers' reasoning about prosocial moral conflicts to prosocial behavior. Child Development, 50, 356-363.

Elias, M. J., Larcen, S. W., Zlotlow, S. F., & Chinsky, J. M. (1978, August). An innovative measure of children's cognitions in problematic interpersonal situations. Paper presented at meeting of American Psychological Association, Toronto.

Flapan, D. Children's understanding of social interaction. (1968). New York: Teachers College Press.

Johnson, D. W., Maruyama, G., Johnson, R. T., Nelson, D., & Skon, L. (1981). Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. Psychological Bulletin, 89, 47-62.

Johnson, D. W., Skon, L., & Johnson, R. T. (1980). The effects of cooperative, competitive and individualistic goal structures on student achievement on different types of tasks. American Educational Research Journal, 17, 83-93.

Lepper, M. R. (1983). Extrinsic reward and intrinsic motivation: implications for the classroom. In J. M. Levine & M. C. Wang (Eds.) Teacher and student perceptions. (pp.281-317). Hillsdale, N.J.: Lawrence Erlbaum.

Pepitone, E. A. (1980). Children in cooperation and competition. Lexington, MA: D. C. Heath.

Ryan, R. M., Connell, J. P., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. Ames (Eds.). Research on motivation in education. Vol. 2. The classroom milieu. (pp. 13-51). New York: Academic Press.

Selman, R.O. (1980). The growth of interpersonal understanding. New York: Academic Press.

Sharan, S., & Shachar, H. (1988). Language and learning in the cooperative classroom. New York: Springer-Verlag.

Solomon, D., Ali, F., Kfir, D., Houlihan, K., & Yaeger, J. (1972). The development of democratic values and behavior among Mexican-American children. Child Development, 43, 625-638.

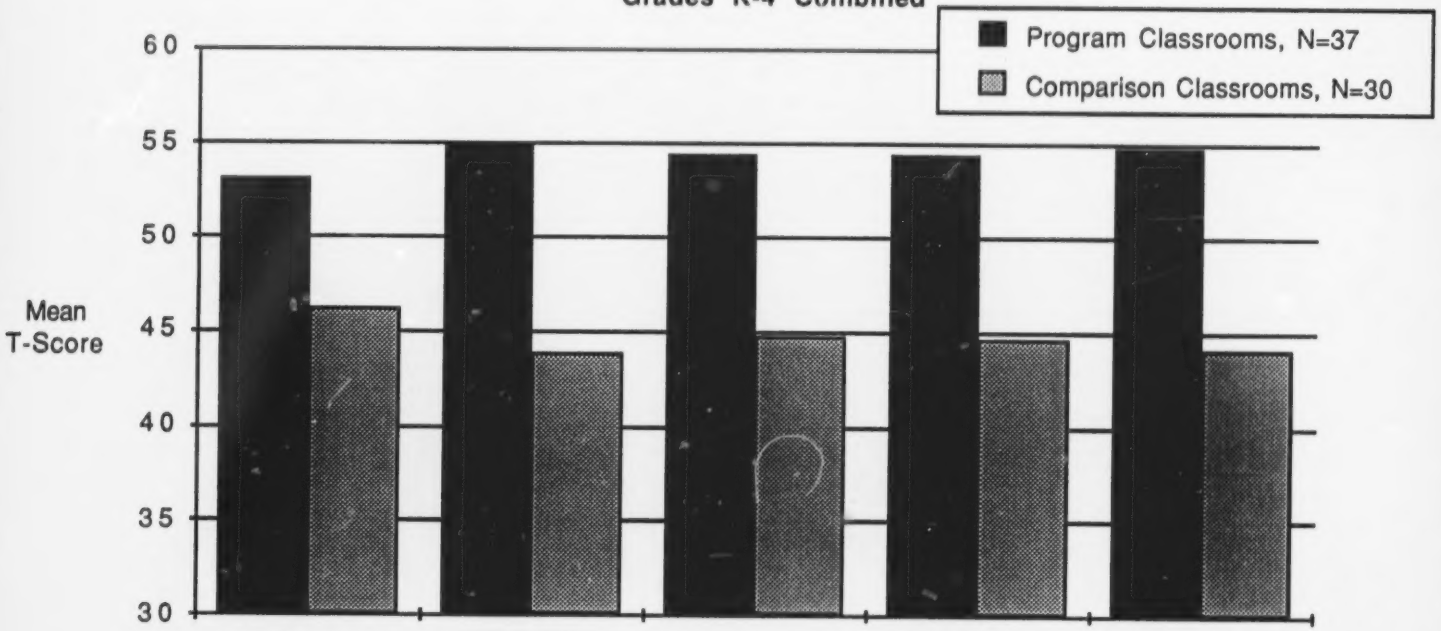
Solomon, D., Schaps, E., Watson, M. S., & Battistich, V. (1987, March). Promoting prosocial behavior in schools: A second interim report on a five-year longitudinal project. Paper presented at meetings of American Educational Research Association, Washington, D. C.

Solomon, D., Watson, M. S., Battistich, V., Schaps, E., Tuck, P., Solomon, J., Cooper, C., & Ritchey, W. (1985). A program to promote interpersonal consideration and cooperation in children. In R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb, & R. Schmuck (Eds.), Learning to cooperate: cooperating to learn. (pp. 371-401). New York: Plenum.

Solomon, D., Watson, M. S., Delucchi, K. L., Schaps, E., & Battistich, V. (in press). Enhancing children's prosocial behavior in the classroom. American Educational Research Journal.

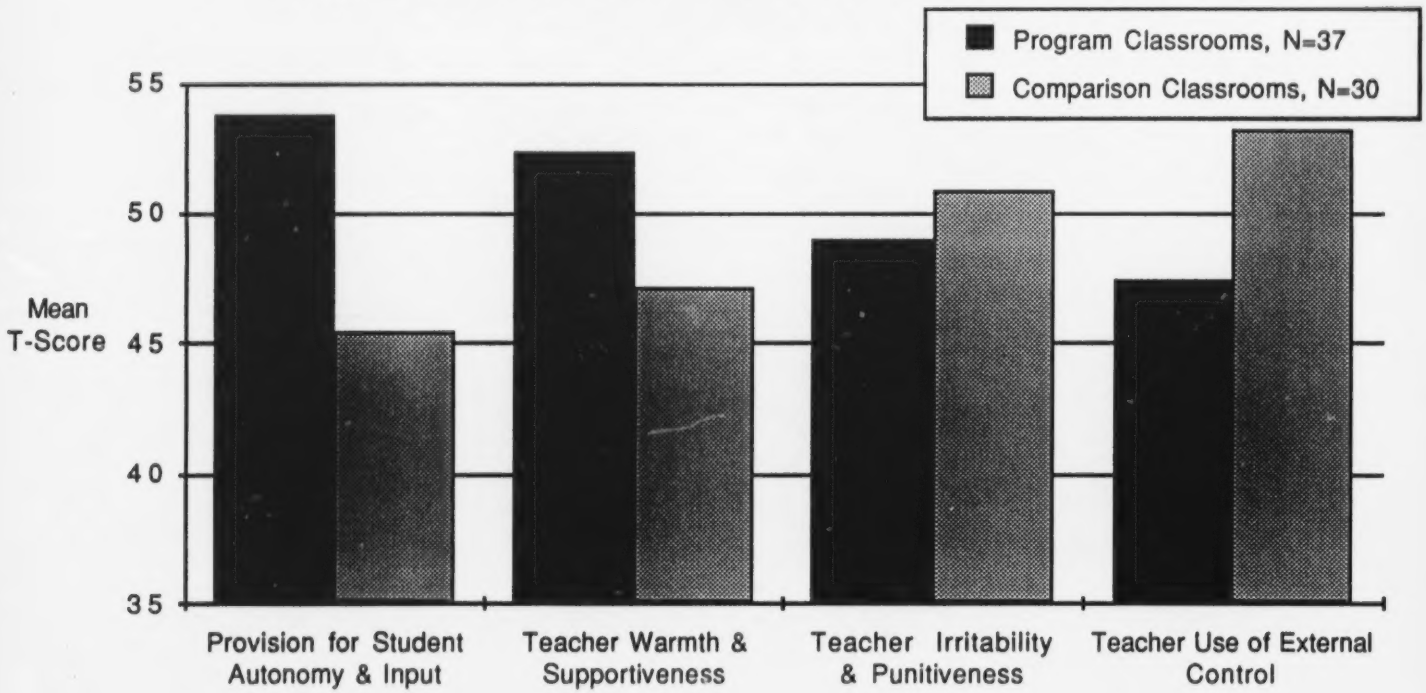
Youniss, J. (1980). Parents and peers in social development. Chicago:

Figure 1
Teachers' Implementation of CDP Program
Grades K-4 Combined



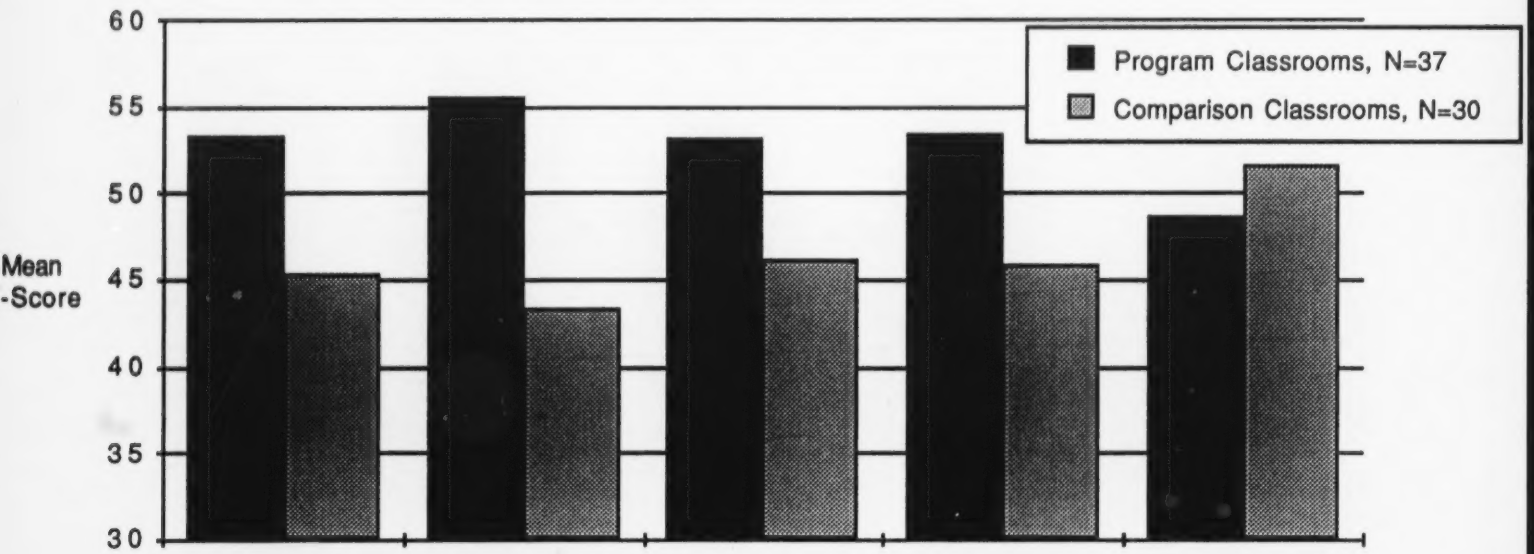
$p <$	.01	.001	.001	.001	.001
$Eta^2 =$	.13	.34	.24	.26	.30

Figure 2
Teachers' Implementation of Developmental Discipline
In Program and Comparison Classrooms - Grades K-4 Combined



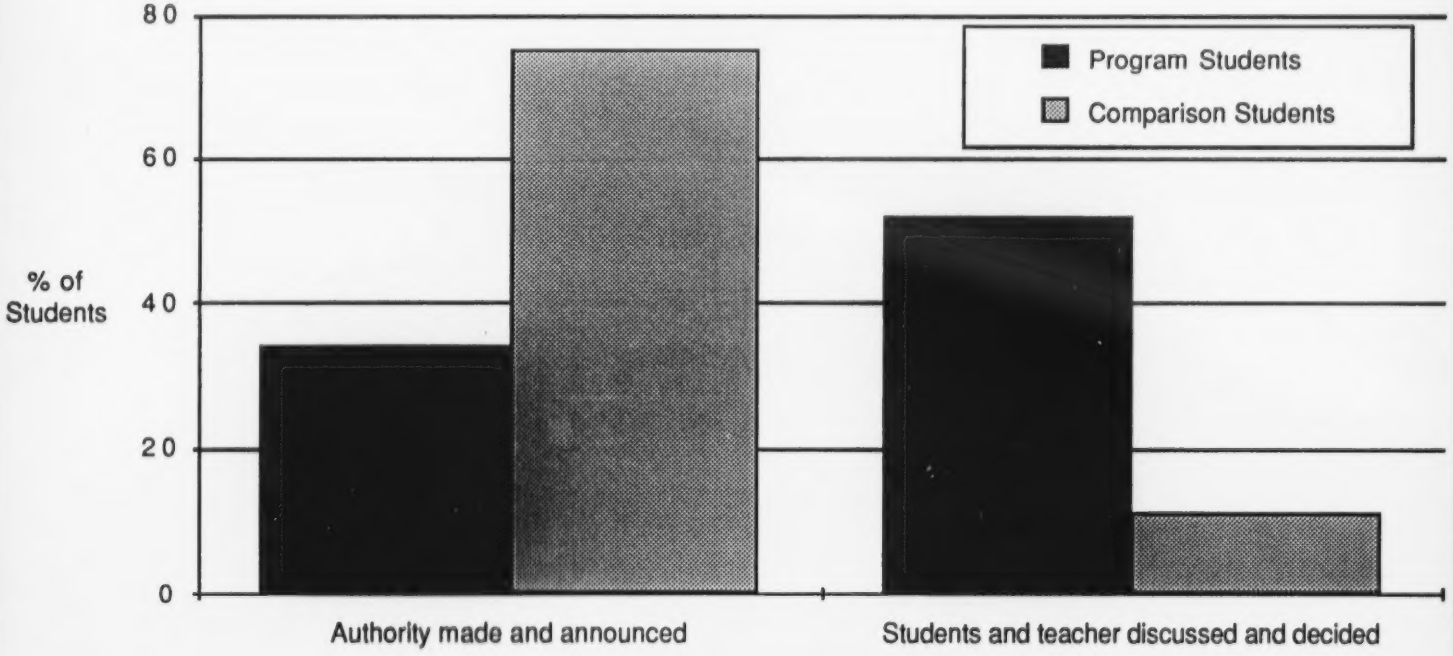
	Provision for Student Autonomy & Input	Teacher Warmth & Supportiveness	Teacher Irritability & Punitiveness	Teacher Use of External Control
p<	.001	.05	ns	.05
Eta ^{2}=	.19	.07		.09

Figure 3
Teachers' Implementation of Cooperative Learning in Program and Comparison Classrooms - Grades K-4 Combined



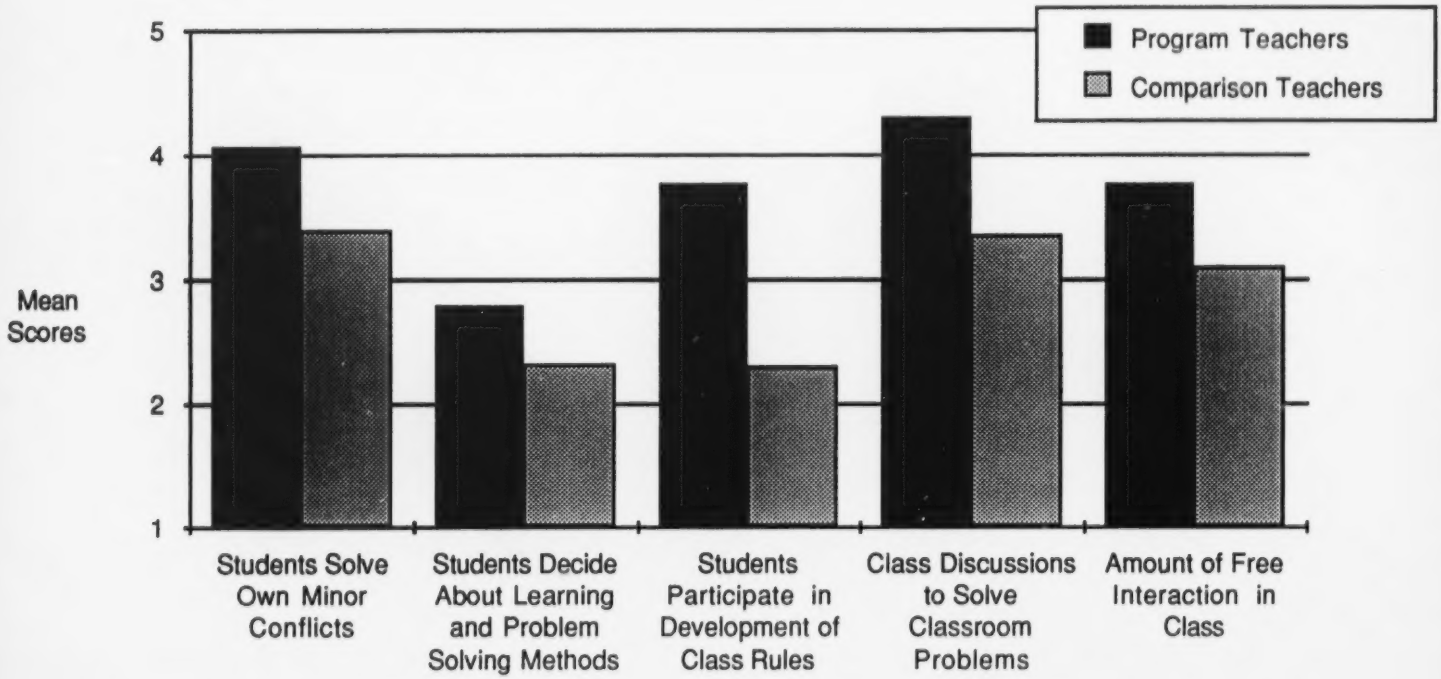
	Encouragment of Cooperation	Facilitation of Cooperative Activities	Student Cooperative Group Activities	Collaborative Within-Group Discussion	Promotion of Competition
$p <$	.001	.001	.01	.001	ns
$Eta^2 =$	.20	.40	.13	.15	

Figure 4
How Were Class Rules Made?



$p < .001$
$phi^2 = .21$

Figure 5
Teacher Reports of Student Autonomy and Decision Making



$p <$	.01	.01	.001	.001	.05
$Eta^2 =$	.12	.10	.28	.17	.27

Figure 6
Student Social Behavior in Program and Comparison Classrooms - Grades K-4 Combined

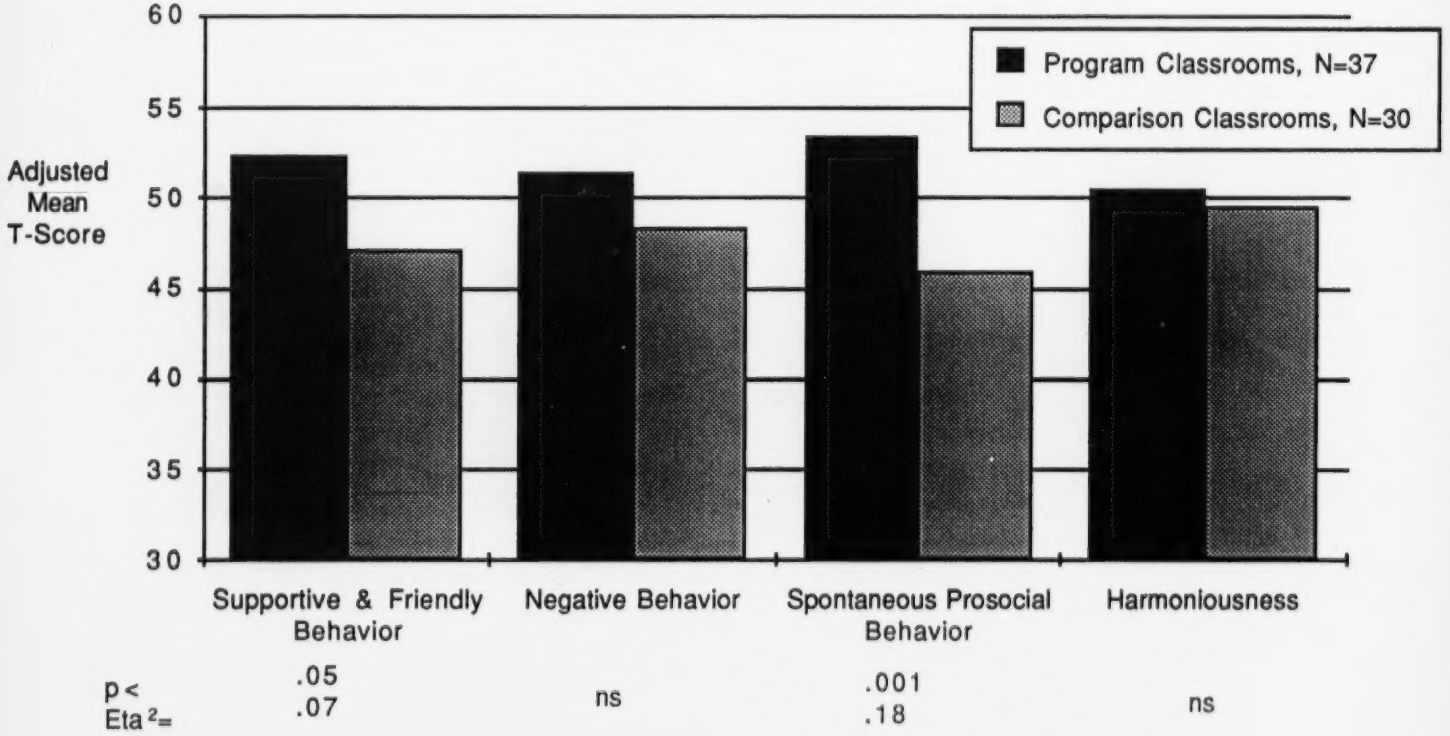
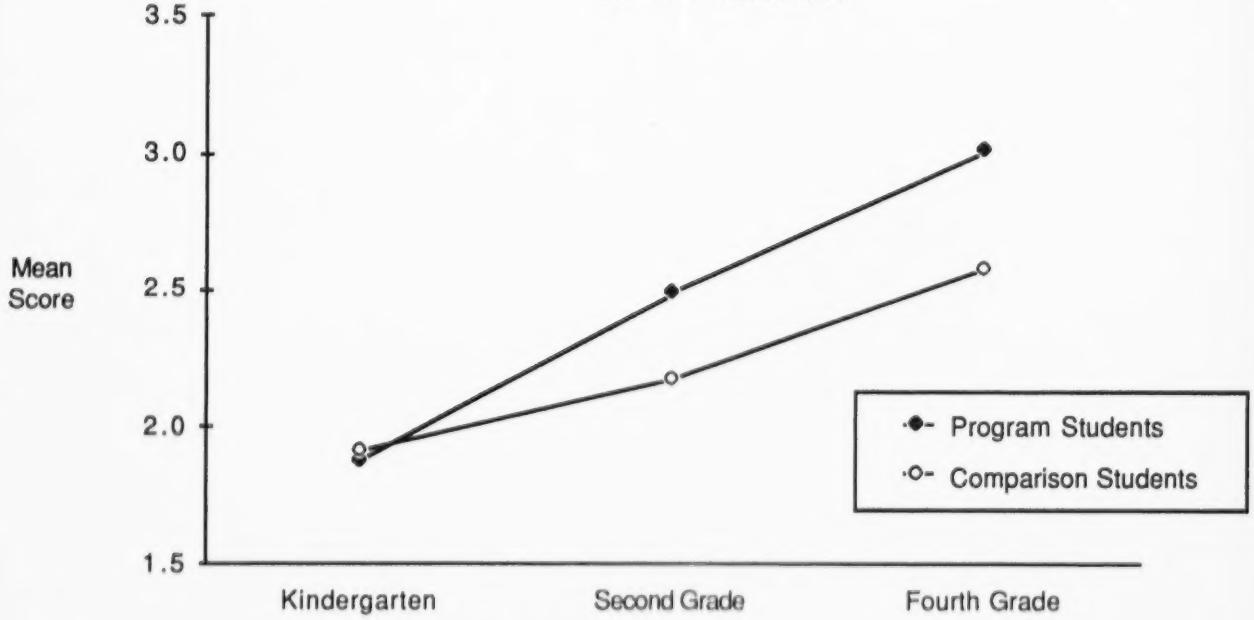


Figure 7
Conflict Resolution



p<	ns	.001	.0001
Eta ^{2}=		.03	.06

Figure 8
Social Problem Solving:
Interpersonal Sensitivity

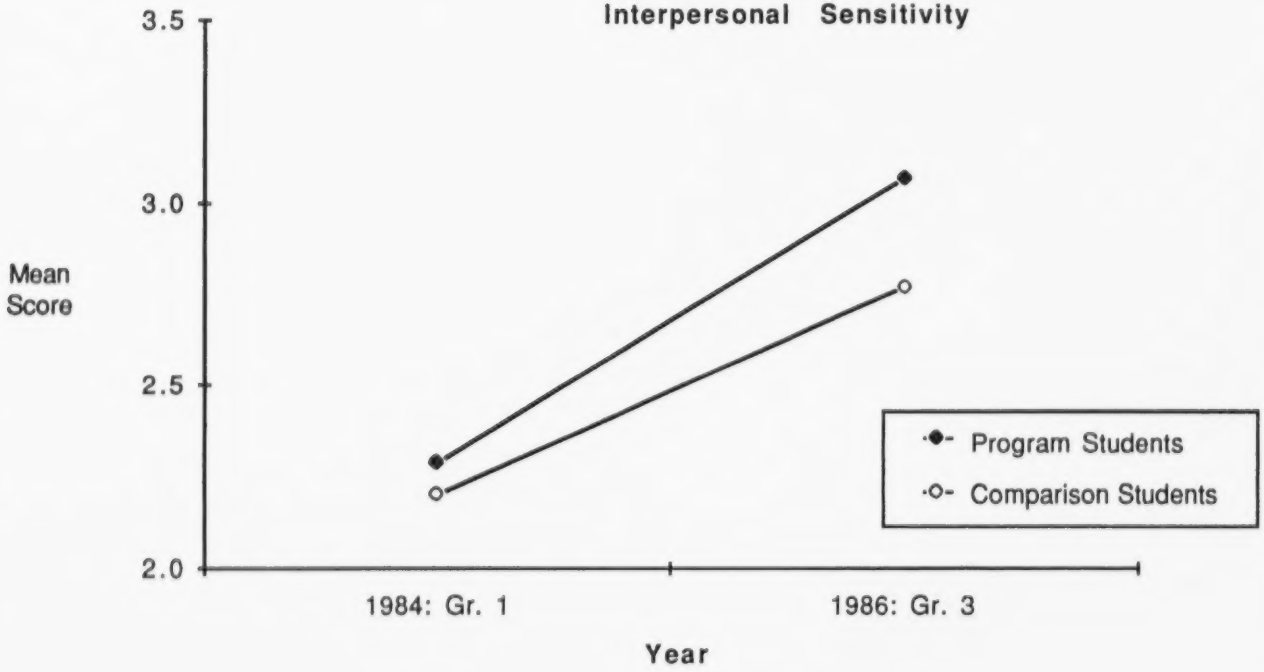
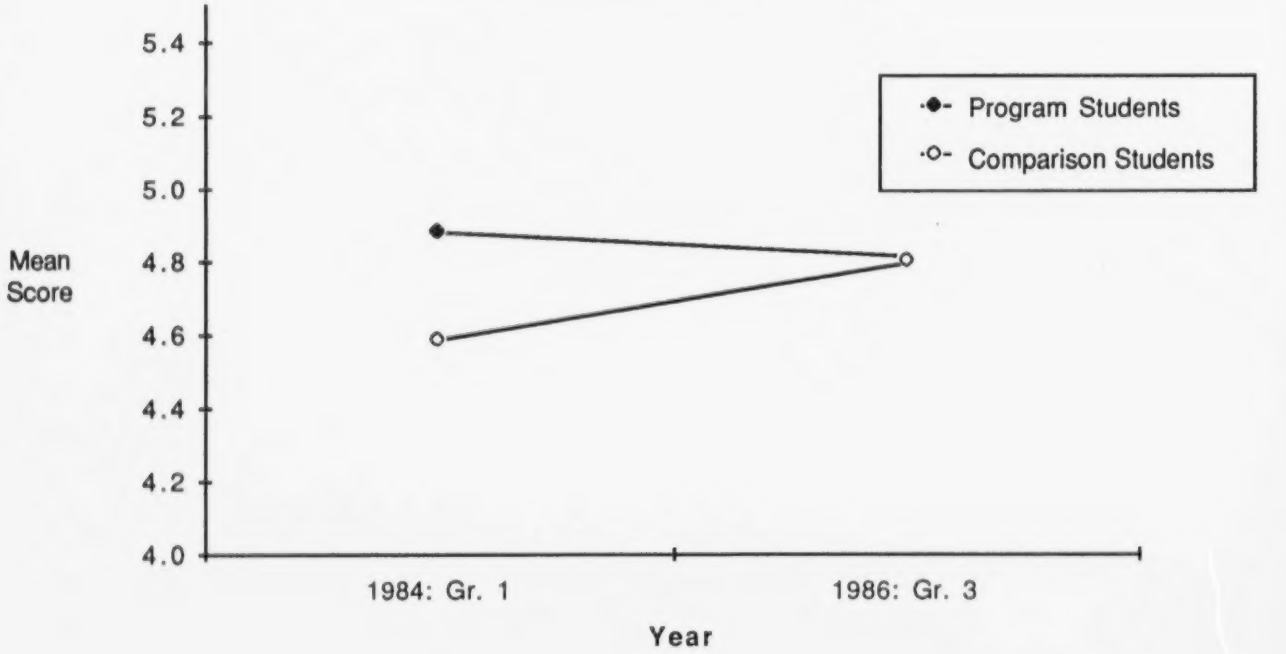


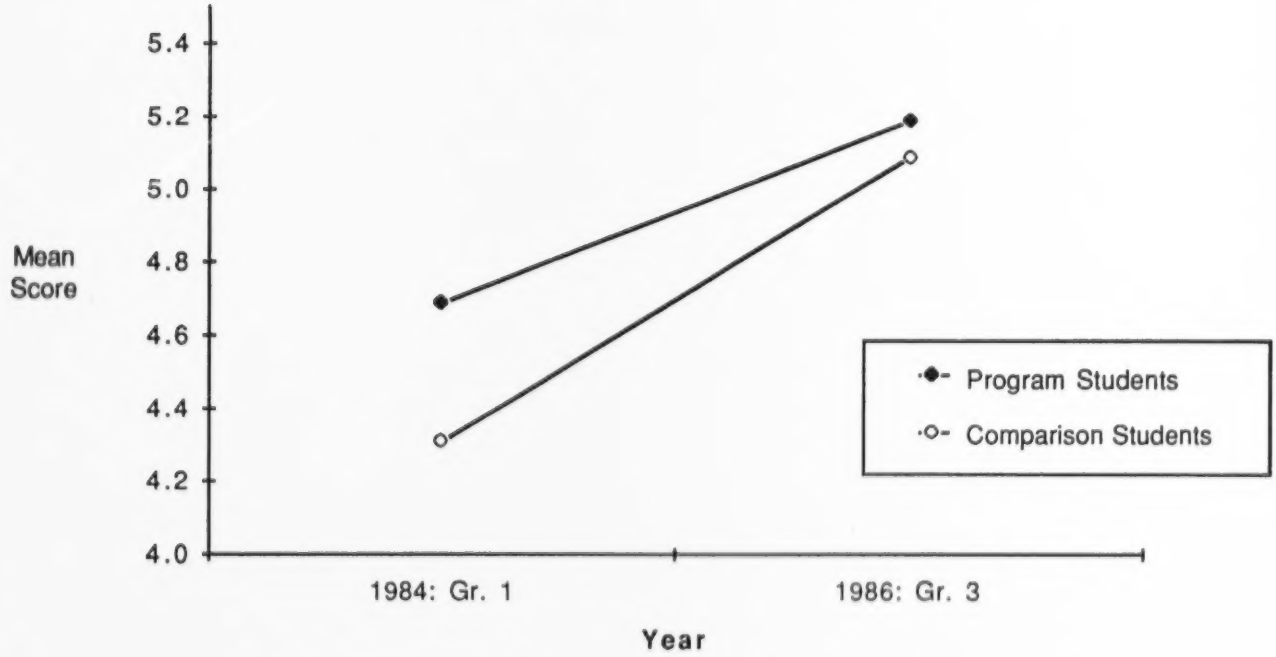
Figure 9
Social Problem Solving:
Problem Resolution Strategy



$p < .01$
$Eta^2 = .02$

n.s.

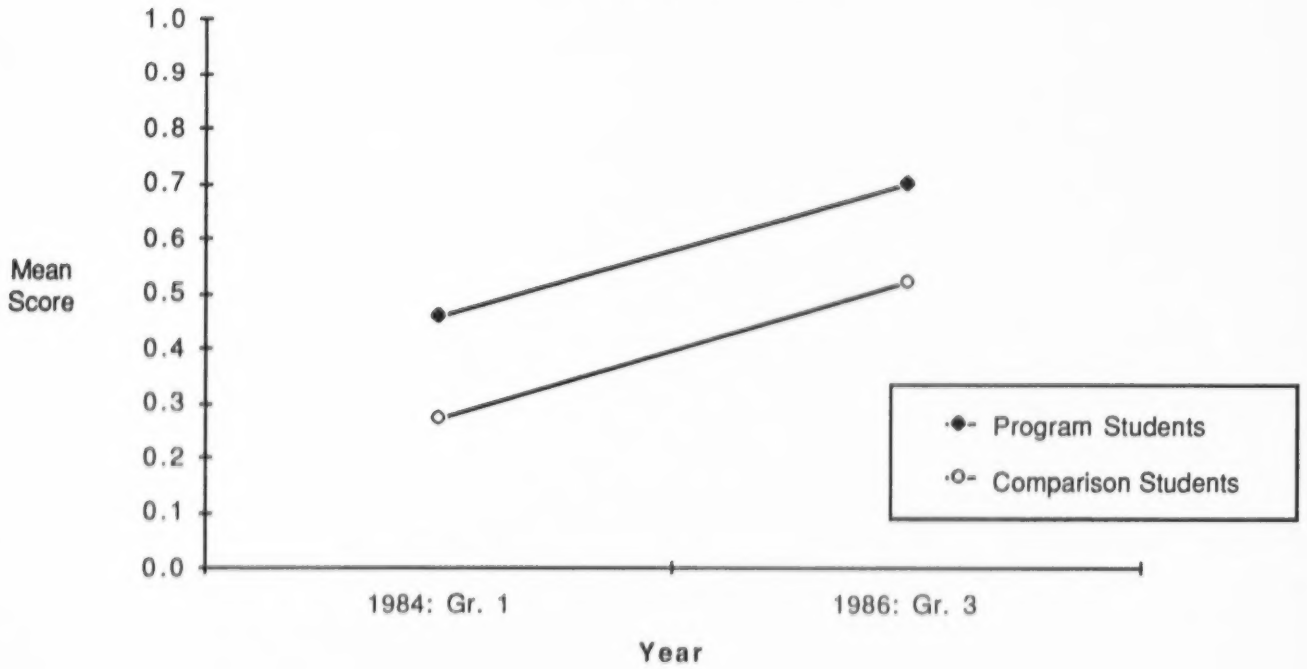
Figure 10
Social Problem Solving:
Outcome Expectancy



$p < .001$
Eta $^2 = .03$

n.s.

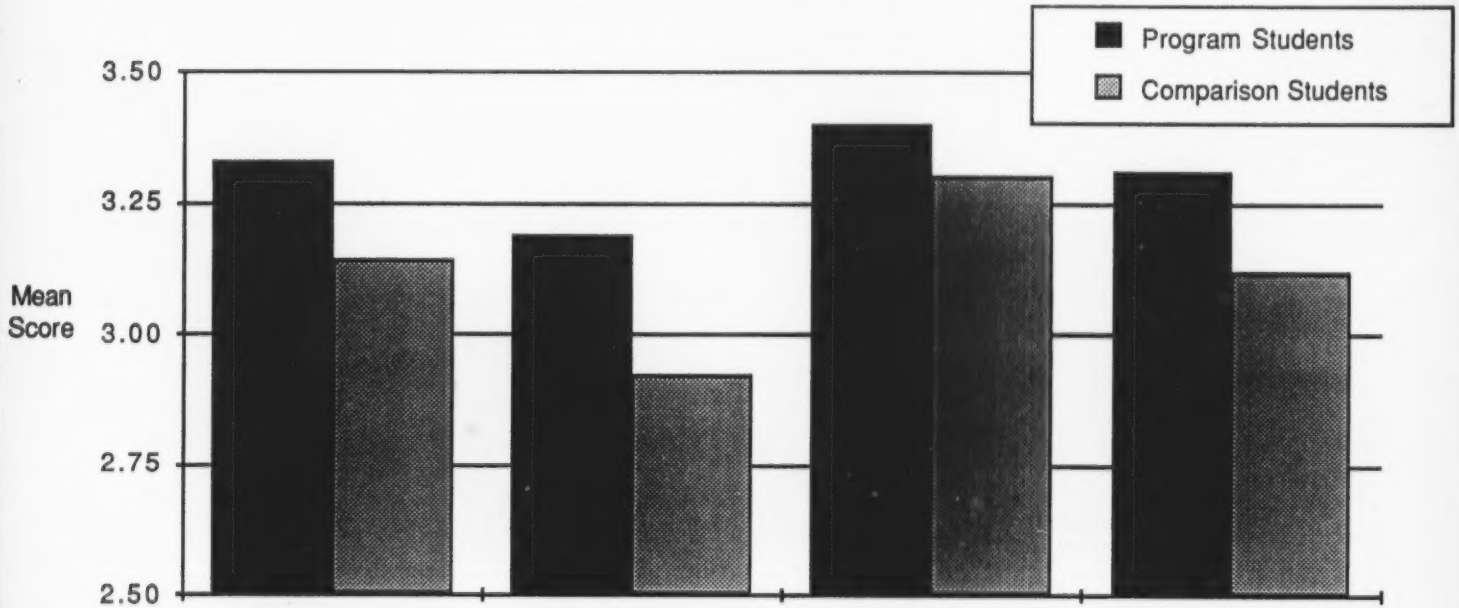
Figure 11
Social Problem Solving:
Means-Ends Reasoning



$p < .001$
$Eta^2 = .04$

$p < .01$
$Eta = .02$

Figure 12
Democratic Values, Grade 4



	Assertion-Responsibility	Equality	Willingness to Compromise	Total
$p <$	.05	.001	ns	.001
$Eta^2 =$	.02	.05		.05